

Survey Unit	Reviewer	Box Plots	Q-Q Plots	Rounds of excavation
TU067	JD, DG	<p>RAS results for all rads do not have any variability and are from a different population than all other surveys/samples so they look suspicious.</p> <p>K-40 FSS results very low variability, low concentrations, and indicate a different population</p>	K-40 in FSS possibly from a different populaion	3
TU068	JD, DG	<p>FSS results have very low variability compared to other surveys, especially for K-40, DG K-40 variability changes bewtween sampling events</p>	K-40 in FSS possibly from a different populaion	3

Gamma scan or static concerns	On vs offsite lab	Time Series
<p>1 - Sampler name, off-site sample mass and COC forms for samples missing from reports.</p> <p>2 -Static survey not signed by RSO in SUPR</p> <p>3 - Raw scan data not in SUPR</p> <p>4 - Scan and static data do not appear to be consistent: scan data highest result was 4,843 cpm; static data ranged from 2,530-6,240 cpm</p> <p>Scan data appears to fall within the expected variability (2,608 - 7,560 cpm)</p>	<p>According to Data Eval Plan, the on-site vs off-site data are consistent</p>	
<p>1 - Sampler name, off-site sample mass and COC forms for samples missing from reports.</p> <p>2 -Static survey not signed by RSO in SUPR</p> <p>3 - Raw scan data not in SUPR</p> <p>Scan data appears to fall within the expected variability (2,608 - 7,560 cpm)</p>	<p>According to Data Eval Plan, the on-site vs off-site data are consistent</p>	

Name suspect (1=yes, 0=no)	Name	Signs of falsifying (1=Yes, 0=no)	Signs of falsification summary	Failure to follow workplan (1=Y, 0=N)
1	R Roberson	1	<p>1 -RAS results look suspicious due to very low variability</p> <p>2 - Review form indicates allegations associated with this TU: Former Worker Allegation: RSY-2 laborers missing the required number of samples. Taylor told them to go get a sample "from anywhere." They went behind the Conex to another pad and got an unrelated "false" sample. Allen and Reggie</p> <p>3 - missing COCs and raw scan data in reports</p>	
0		1	<p>JD 1 -RAS results look faked due to very low variability</p> <p>2 - SUPRs missing COCs, RSO signatures, sampler names, and raw scan data in reports</p> <p>3 - Multiple excavations, adjacent to TU067 where worker allegations specify excavated soil was not scanned properly in RSY2 DG Population of K-40 on is much more variable on 9/19/07 then the remaining 10 events. From 9/19/07 to 9/20/07 variability drops.</p>	

Signs of failure to follow workplan	Overall score (0 to 2)
Missing data and info in SUPRs	1
	1

Comments - Other	Followup needed, e.g. questions for Navy	Recommend for PCA (1 or 0)
<p>This survey unit is suspect for the following reasons:</p> <p>1 - Former worker allegations regarding screening of soil from this trench unit at the RSY2. This indicates a high potential that FSS results could also have been falsified</p> <p>2 - RAS results do not have normal variability - suspect for falsification</p> <p>3 - K-40 FSS results look like they are from a different popultaion than other surveys</p> <p>4 - COCs and names of samplers missing in SUPR</p> <p>5 - No RSO signatures on survey results</p> <p>6 - Raw scan data missing from SUPR</p> <p>Recommend for re-sampling</p>		JD, DG 0
<p>This survey unit is suspect for the following reasons:</p> <p>1 - Variability in sample results for FSS low - suspect for falsification</p> <p>2 - K-40 FSS results look like they are from a different population than other surveys</p> <p>3 - COCs and names of samplers missing in SUPR</p> <p>4 - No RSO signatures on survey results</p> <p>5 - Raw scan data missing from SUPR</p> <p>Recommend for re-sampling</p>		1 ? If we recommend for re-sample, no need to perform PCA

Grey area - talk to group	Scoring ranking	
yes	4.5	
Yes	5.4	

TU069	JD, DG	<p>RAS results for all radionuclides have low variability and for Ac-228 and Bi-214, indicate RAS results are from a different population than all other surveys/samples.</p> <p>K-40 FSS results have very low variability, low concentrations, and indicate there are different populations among the surveys, DG K-40 variability changes between sampling events</p>	K-40 in FSS from a different population	3
TU071	DG, DK; JD	<p>RAS samples show different population for Bi-214</p> <p>K-40 FSS-Bias have a large variability indicating either heterogeneous soil or potentially different soil populations</p>	<p>RAS K-40 results look different than other two surveys, however only two RAS samples were collected.</p> <p>K-40 FSS-Bias has a wider range of values.</p>	1
TU072	DK; KB; JD	No anomalies noted	No anomalies	3

<p>1 - Sampler name, off-site sample mass and COC forms for samples missing from reports.</p> <p>2 -Static survey not signed by RSO in SUPR</p> <p>3 - Raw scan data not in SUPR</p> <p>4 - Scan and static data inconsistent: highest count for statics was 4,676 cpm; scan data ranged from 3,220 - 6,200 cpm</p>	<p>According to Data Eval Plan, the on-site vs off-site data are consistent</p>	<p>Sys-1 and FSS-Bias results for K-40 are from a different population than the RAS of FSS. This indicates there may be different populations of soils/samples represented between the different surveys.</p>
<p>Gamma static survey data highest count was 6,165 cpm; scan survey data ranged from 4,000 - 7,500 cpm.</p> <p>No range was provided for the Static survey data.</p> <p>No signature and date from RSO recorded on the Static Data</p> <p>Scan survey data not available for review, and no signature or date is recorded from the RSO.</p>	<p>According to Data Eval Plan, the on-site vs off-site data are consistent</p>	<p>Cs-137 results were mostly non-detect or negative. Cs-137 results should not be mostly negative. This indicates a potential data quality issue.</p>
<p>The Data Eval Form states the static data (highest count was 4,279 cpm) are inconsistent with the scan results (3,890-6,720 cpm)</p> <p>COCs not provided in SUPR</p>	<p>According to Data Eval Plan, the on-site vs off-site data are consistent</p>	<p>No trends identified</p>

1	A Jahr	1	<p>1 -RAS results for all radionuclides have low variability.</p> <p>2 - Ac-228 and Bi-214 RAS results are from a different population than all other surveys/samples</p> <p>2 - SUPRs missing COCs, RSO signatures, sampler names, and raw scan data in reports</p> <p>3 - Multiple excavations, near to TU067 where worker allegations specify excavated soil was not scanned properly in RSY2, DG K-40 more variable on 9/19/07 and 10/17/07 then other sampling events.</p> <p>4 - Worker involved in allegations included in sample team</p>	1
1	P. Vigil	1	<p>1 - Scan survey data not available for review</p> <p>2 - Static data range not provided in Data Eval Form.</p> <p>3 - No RSO signature and date provided for static or scan data</p>	1
1	R Roberson	1	<p>1 - Inconsistent scan and static data; highest count for static survey was 4,279 cpm where scans ranged from 3,890 - 6,720 cpm2 - SUPR missing COCs</p> <p>2 - Worker involved in allegations included in sample team</p>	1

SUPRs missing COCs, RSO signatures and dates, and scan data	2
<p>1 - RSO signature missing on static and scan data</p> <p>2 - Section 4 of Data Eval Form states "No gamma scan data was available for review to compare with the FSS samples specific dataset static/scan results."</p>	2
COCs not provided in SUPR as documentary evidence of sample integrity, date and time of collection and arrival at laboratory.	2

<p>This survey unit is suspect for the following reasons:</p> <p>1 - RAS results do not have normal variability and are from different popultaion than other surveys for Ac-228 and Bi-214 - suspect for falsification</p> <p>2 - K-40 FSS results look like they are from a different popultaion than other surveys</p> <p>3 - COCs and names of samplers missing in SUPR</p> <p>4 - No RSO signatures on survey results</p> <p>5 - Raw scan data missing from SUPR</p> <p>6 - Worker involved in allegations performed work at this TU</p> <p>Recommend for re-sampling</p>		<p>1 ? If we recommend for re-sample, no need to perform PCA</p>
<p>1 - Remediation was performed due to Cs-137, the time series plots show that most of the characterization results for Cs-137 were at or near zero, or were negative values. This indicates a data quality issue, and thus, un-reliable data.</p> <p>2 - Gamma scan data missing, and no RSO signature and date on static and scan data.</p> <p>Recommend resample to confirm ROC concentrations for Ra-226 and Cs-137</p>	<p>Section 4 of Data Eval Form states "No gamma scan data was available for review to compare with the FSS samples specific dataset static/scan results."</p> <p>Need explanation on what this means.</p>	<p>0</p>
<p>1 - Scan and Static data are inconsistent</p> <p>2 - SUPRs do not contain COCs for samples collected. Without this documentary evidence, the integrity, location, date, time or evidence of who had custody of the samples is missing. Therefore, the data is not defensible and not usable for decision making.</p> <p>Recommend resample to confirm ROC concentrations</p>		

	5.4
	8.2
	7.2 10

TU073	DK; JD	No anomalies noted	No anomalies noted, K-40 slope slightly different in SYS_1 but this is due to one or more low results in this set of data.	3
TU074	JD	No comparisons made - only one set of FSS data collected. Data are highly variable	No comparisons made - only one set of FSS data collected	0

<p>Scan data (highest count was 4,673 cpm) and Static data (4,240 - 8,750) are not consistent.</p> <p>RSO signature and date missing from survey data, sampler not identified in SUPR</p>	<p>According to Data Eval Plan, the on-site vs off-site data are consistent</p>	<p>No trends identified.</p>
<p>1 - Scan and static data are inconsistent. Static results ranged from 4,300 - 5,800 cpm; scan ranged from 1,630 - 6,750 cpm.</p> <p>2 - Low value in scan data unusual because it is below background.</p> <p>3 - Small range/low variability in Static results</p> <p>3 - Scan data performed after FSS sample collection.</p>	<p>According to Data Eval Plan, the on-site vs off-site data are consistent</p>	<p>It is noted that extremely low results for Ac-228, Bi-214, and K-40 reported on the same days, indicating a potential problem with the data on these dates. Time series plots dates were not legible</p>

1	P. Vigil	1	<p>1 - Scan and Static data inconsistency; narrow range of static data values which is not consistent with environmental monitoring.</p> <p>2 - RSO signature on scan and static data results is missing</p> <p>3 - Suspect worker involved with data collection</p>	0
1	P. Vigil	1	<p>1 - Scan and static data are inconsistent. Static results ranged from 4,300 - 5,800 cpm; scan ranged from 1,630 - 6,750 cpm.</p> <p>2 - Low values in scan data unusual because the low counts per minute are within a range that is below background.</p> <p>3 - Scan data performed after FSS sample collection.</p>	1

	2
Scan data collected after FSS sample collection which is a departure from the Work Plan.	2

<p>1 - TU is downstream from Building 274 used for decontamination training and offices, Building 322 used by NRD L for development of radiation detection instrumentation (no contamination found and building demolished), and Buildings 313, 313A used by NRD L for Instrumentaiton laboratory and as stockroom and storage areas.</p> <p>2 -Cs-137 was found above the action level in 2002; but no evidence of residual radioactivity above the release criteria was found in 2014.</p>		
<p>1 - TU074 was not remediated but is adjacent to TUs 81 and 83 which did have contamination.</p> <p>2 - Sanitary sewer is associated with Bldg 401, used for storage of sealed sources, a maintenance shopt,and offices, a trades shop, and general store. No contamination is expected to have been released from this building; however, TU075 which was also connected to Bldg. 401 did have contamination.</p> <p>3 - Scan and Static data are inconsistent, with unusually low results in scan data and in FSS data.</p> <p>4 - Scan was performed after FSS samples collected.</p> <p>5 - Sampler not identified in SUPR, person responsible for gamma scans and static measurements is listed on the NRC petition as a suspect worker.</p> <p>Recommend for re-sample</p>		

Review with group	6.6 13
	Not available

TU075	JD	<p>RAS and Bias results are slightly higher when compared to SYS-1 or FSS results for Ac-228 and Bi-214; however the number of RAS and FSS-Bias results is small and the differences in concentration ranges are relatively small</p>	<p>RAS and FSS-Bias K-40 data have a different slope than SYS-1 or FSS data sets, however range of values for RAS and FSS-Bias is only slightly different and number of samples is small</p>	2
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<p>Data Eval Form noted that there were negative results for Ra-226, low K-40 concentrations, and two results for Ac-228 at or below 0 pCi/g.</p> <p>Static and scan data are not consistent. Static results ranged from 4,200 - 6,200 cpm; scan data ranged from 1,370 - 7,720 cpm.</p> <p>Low values in scan data are unusual because these low values are significantly lower than background.</p>	<p>According to Data Eval Plan, the on-site vs off-site data are consistent</p>	<p>Ac-228 and Bi-214 RAS and Bias results are from a different population than SYS-1 or FSS results</p>
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1	P. Vigil	1	<p>Inconsistent static data (4,200 - 6,200 cpm) and scan data (1,370 - 7,720 cpm), scan data includes results below background levels.</p> <p>Suspect worker involved in data collection.</p>	1
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<p>Section 4 of the Data Eval Form states that there was no mention of pipe swipe surveys or sediment sampling in manholes. This would indicate a deficiency in the investigation and a departure from the Work Plan.</p>	2
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<p>1 - Data Eval Form noted that there were negative results for Ra-226, low K-40 concentrations, and two results for Ac-228 at or below 0 pCi/g. Reviewer comment: this could indicate poor data quality and/or falsification.</p> <p>2 - Static and scan data are inconsistent. Static results ranged from 4,200 - 6,200 cpm; scan data ranged from 1,370 - 7,720 cpm: Low values in scan data are unusual because these low values are significantly lower than background.</p> <p>4 - Sanitary sewer is associated with Bldg 401, used for storage of sealed sources, a maintenance shop, and offices, a trades shop, and general store. The narrative states that no contamination was found on surfaces or drains in the building, therefore it is not expected that contamination released from this building.</p> <p>5 - Section 4 of the Data Eval Form discusses the contamination that was found in this TU, despite the purported lack of contamination in Bldg 401. The narrative also states that there was no mention of pipe swipe surveys or sediment sampling in manholes, therefore the investigation did not follow the Work Plan and is deficient. This is important to note because contamination was found in this trench.</p> <p>6 - Suspect worker involved in static/scan surveys</p> <p>Recommend re-sampling.</p>	<p>Need to look at data more closely to identify possible reasons for data inconsistencies. For example: Were scan and static data sets approved/signed by RSO? Are COCs present in SUPR? Were any data quality issues mentioned in RACR or SUPR?</p>	<p>1</p>
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	5.8
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TU076	JD	All surveys/sample collection results have low and/or non-detect results for Ac-228	K-40 results have large range of values/variability, especially in FSS.	4
TU078	JD	All surveys/sample collection results have low and/or non-detect results for Ac-228 except for FSS-Bias results	K-40 FSS has large range of values compared to other survey units.	4 to 5

<p>Static and scan data inconsistent. Static ranged from 4,452 - 4,914; scan data ranged from 3,000 - 7,000 cpm</p>	<p>On-site lab reported higher Bi-214 and Ra-226 values than off-site lab.</p>	<p>All surveys/sample collection results have low and/or non-detect results for Ac-228</p>
<p>Static and scan data inconsistent. Static ranged from 3,953 - 4,543; scan data ranged from 3,000 - 7,000 cpm</p>	<p>On-site lab reported higher Bi-214 and Ra-226 values than off-site lab.</p>	<p>All surveys/sample collection results have low and/or non-detect results for Ac-228</p>

1	Scan/Static Surveyor: J Cunningham	1	<p>1 -Static and scan data inconsistent. Static ranged from 4,452 - 4,914; scan data ranged from 3,000 - 7,000 cpm. Range for static data is too small indicating static data is falsified.</p> <p>2 - All surveys/sample collection results have unusually low and/or non-detect results for Ac-228. This indicates either poor data quality or falsification.</p> <p>3 - Suspect worker involved with data collection.</p>	1
?	<p>Scan/Static Surveyor: S. Brown</p> <p>Note - could this be the same person as Emmitt Brown from NRC list?</p>	1	<p>1 -Static and scan data inconsistent. Static ranged from 3,953 - 4,543; scan data ranged from 3,000 - 7,000 cpm. Range for static data is small.</p> <p>2 - Scan data is reported to be exactly the same as TU076 (3,000 - 7,000 cpm)</p> <p>3 - Unclear whether Scan/Static personnel S. Brown is the same as Emmitt Brown from NRC list</p>	0

<p>Range of cpm values for static data is too small indicating static data may have been collected at only one or a few locations.</p>	2
	1

<p>1 - Sanitary sewer is associated with Bldg 411. Data Eval Form does not state what activities occurred in these buildings.</p> <p>2 - Adjacent TUs 078, 080 also had several Ac-228 results that were at or below 0. In addition TU077 had the same Ac-228 low or at 0 results.</p> <p>3 - Static and scan data are inconsistent; static results ranged from 3,954 - 4,543 cpm and scan data ranged from 3,000 - 7,000 cpm. Inconsistency, and reporting of exact same cpm range for scan data in TU 076 and TU078 is flag for falsification.</p> <p>4 - Suspect worker involved in data collection.</p> <p>5 - Probable data quality issues with low Ac-228 results.</p> <p>Data Eval Form states TU076 is adjacent to Bldg 411. Similarly, TU078 and TU080 are also adjacent to Bldg. 411. Samples collected from all three TUs include several Ac-228 results that are at or below 0, and similarities were observed with samples collected from TU077 which is adjacent to TU076.</p> <p>Recommend re-sample.</p>	<p>Need to look at data more closely to identify possible reasons for low or non-detect Sc-228 and data inconsistencies. For example: Were scan and static data sets approved/signed by RSO? Are COCs present in SUPR? Were any data quality issues mentioned in RACR or SUPR?</p>	<p>0</p>
<p>1 - Sanitary sewer is associated with Bldg 411 and 439. Data Eval Form does not state what activities occurred in these buildings.</p> <p>2 - Adjacent TUs 076, 080 also had several Ac-228 results that were at or below 0. In addition TU077 had the same Ac-228 low or at 0 results.</p> <p>3 - Static and scan data are inconsistent; static results ranged from 3,954 - 4,543 cpm and scan data ranged from 3,000 - 7,000 cpm. Inconsistency, and reporting of exact same cpm range for scan data in TU 076 and TU078 is flag for falsification.</p> <p>4 - It is unclear whether suspect worker was involved in data collection.</p> <p>Data Eval Form states TU076 is adjacent to Bldg 411. Similarly, TU078 and TU080 are also adjacent to Bldg. 411. Samples collected from all three TUs include several Ac-228 results that are at or below 0, and similarities were observed with samples collected from TU077 which is adjacent to TU076.</p> <p>Recommend re-sample.</p>		<p>1</p>

	Not available
	5

TU079	JD	Only FSS data collected, no remediation conducted. Large range of values/variability for all rads in FSS data	Only FSS data collected, no remediation conducted. Large range of values/variability for all rads in FSS data	0
TU080	JD	Only FSS data collected, no remediation conducted. Large range of values/variability for all rads in FSS data	Only FSS data collected, no remediation conducted. Large range of values/variability for all rads in FSS data	0

<p>Static and scan data inconsistent. Static ranged from 5,326 - 5,943; scan data ranged from 3,430 - 6,790 cpm</p>	<p>According to Data Eval Plan, the on-site vs off-site data are consistent</p>	<p>Variable data, large range of values</p>
<p>Static and scan data inconsistent. Static ranged from 6,089 - 7,126 cpm; Scan ranged from 4,250 - 6,500 cpm</p>	<p>On-site lab reported higher Bi- 214 and Ra-226 values than off- site lab.</p>	<p>Variable data, large range of values</p>

1	P. Vigil	1	Static data (5,326 - 5,943 cpm) and Scan data (3,430 - 6,790 cpm) are not consistent, static data has very narrow range of values compared to what would be expected for environmental conditions.	
1	R. Zahensky	1	Static and scan data inconsistent. Static ranged from 6,089 - 7,126 cpm; Scan ranged from 4,250 - 6,500 cpm	0

	1
	2

<p>1 - Sanitary sewer is associated with Bldg 411 and 439. Data Eval Form does not state what activities occurred in these buildings. HRA info is needed to evaluate potential for contamination of sewer lines/TU079.</p> <p>2 - Adjacent TUs 076, 078, and TU108; and nearby TUs 077, 080, 082 also had several Ac-228 results that were at or below 0.</p> <p>3 - Static and scan data are inconsistent; static results ranged from 5,326 - 5,943 cpm and scan data ranged from 3,430 - 6,790 cpm.</p> <p>4 - Suspect worker involved in data collection.</p> <p>5 - Probable data quality issues with Ac-228 results.</p>	<p>Sanitary sewer is associated with Bldg 411 and 439. Data Eval Form does not state what activities occurred in these buildings. HRA info is needed to evaluate potential for contamination of sewer lines/TU079.</p>	1
<p>1 - Sanitary sewer is associated with Bldg 411. Data Eval Form does not state what activities occurred in these buildings. HRA info is needed to evaluate potential for contamination of sewer lines/TU079.</p> <p>2 - Adjacent TUs 076, and TU087 (also adjacent to Bldg. 411); and nearby TUs 077, 080, 082 also had several Ac-228 results that were at or below 0.</p> <p>3 - Static and scan data are inconsistent; static results ranged from 6,089 - 7,126 cpm and scan data ranged from 4,250 - 6,500 cpm.</p> <p>4 - Suspect worker involved in data collection.</p> <p>5 - Probable data quality issues with Ac-228</p>	<p>Sanitary sewer is associated with Bldg 411. Data Eval Form does not state what activities occurred in this building. HRA info is needed to evaluate potential for contamination of sewer lines/TU080.</p>	1

	Not available
	Not available

TU082	JD	<p>All survey types had very low concentrations of Ac-228, or concentrations at 0; RAS results for Ac-228 also had negative values</p>	<p>No anomalies in trends observed; however Ac-228 results were low, with some reported as 0 or negative (RAS).</p>	2
TU083	JD	<p>All surveys resulted in low and/or negative values for Ac-228.</p> <p>Narrow range and low values noted for Bi-214 in the FSS-SYS (conc ranges from approximately 0.3 - 0.45 pCi/g). The box plots do not provide the uncertainty values associated with any of the results so it is not clear how accurate these results are at such low concentrations.</p> <p>K-40 results were fairly consistent between survey types, but all surveys had highly variable (large range of values between approximately 1 or 2 pCi/g - 30 pCi/g) in all surveys.</p>	<p>All three surveys for K-40 had similar distributions, with a large range of values</p>	2

<p>RAS Samples 56 and 58 were collected 05/05/08, sample 57 listed as collected on 05/08/08; reports however, were generated on 05/05/08. Record of collection date for sample 57 may be typographical, or may indicate falsification.</p> <p>Static data (5,611 - 6,564 cpm) were inconsistent with Scan data (4,750 - 6,920 cpm).</p>	<p>Data Eval Form states data were consistent</p>	<p>No anomalies in trends observed; however Ac-228 results were low, with some reported as 0 or negative (RAS).</p>
<p>The FSS results demonstrate high variability in K-40 results but low variability in Ac-228 and Bi-214.</p> <p>Pb-214 noted to have two populations</p> <p>Data Eval Form states Static and Scan data (2,000 - 5,000 cpm) are inconsistent. Static data range not provided.</p> <p>Data Eval Form states Static data are potentially falsified but no evidence regarding sampling falsification is available.</p> <p>Static scan date and time not provided in SUPR</p> <p>Scanning was performed after FSS samples collected.</p>	<p>On-site lab reported higher values than off-site lab, including one result for K-40</p>	<p>Large range of values are reported for all survey types for K-40, which appears to indicate more than one population of soil type may be represented in the data.</p>

1	J. Cunningham	1	<p>1 - RAS Samples 56 and 58 were collected 05/05/08, sample 57 listed as collected on 05/08/08; reports however, were generated on 05/05/08. Record of collection date for sample 57 may be typographical, or may indicate falsification.</p> <p>2 -Static data (5,611 - 6,564 cpm) were inconsistent with Scan data (4,750 - 6,920 cpm).</p>	0
0	M. Synder	1	<p>The FSS results demonstrate high variability in K-40 results but low variability in Ac-228 and Bi-214.</p> <p>Pb-214 (daughter of Ra-226) noted to have two populations</p> <p>Data Eval Form states Static and Scan data (2,000 - 5,000 cpm) are inconsistent. Static data range not provided.</p> <p>Data Eval Form states Static data are potentially falsified but no evidence regarding sampling falsification is available.</p> <p>Static scan date and time not provided in SUPR</p> <p>Scanning was performed after FSS samples collected.</p>	1

	2
Scan data collected after FSS sample collection.	2

<p>1 - RAS Samples 56 and 58 were collected 05/05/08, sample 57 listed as collected on 05/08/08; reports however, were generated on 05/05/08. Record of collection date for sample 57 may be typographical, or may indicate falsification.</p> <p>2 - Static data (5,611 - 6,564 cpm) were inconsistent with Scan data (4,750 - 6,920 cpm).</p> <p>3 - Suspect worker involved with data collection.</p> <p>4 - TU082 is adjacent to TUs 077, 080, 081 which all included several Ac-228 results at or below 0. Data Eval Form indicates Bi-212 and Pb-212 in the Th-232 decay series were consistent with other sample results in TU082. This may indicate a data quality issue with the analysis and reporting of Ac-228.</p> <p>Recommend for re-sampling</p>		1
<p>1 - Sanitary sewer is associated with Bldg 401. Data Eval Form states that Bldg 401 was not identified in the HRA but that after it was leased, sealed radiological sources (dials and gauges) were stored in the building. Data Eval Form also states no contamination was identified on surfaces or drains, therefore there is no reasonable potential that Bldg 401 activities contaminated the sewer system. Note: Based on revelations about building scan falsification issues, the reviewer questions how thorough or accurate surveys done on surfaces or drains in this building were.</p> <p>2 - Adjacent TUs include 076, 123, and 124.</p> <p>3 - Static and scan data are inconsistent; static results were not provided but scan data ranged from 2,000 - 5,000 cpm. Even number cpm values is suspect.</p> <p>4 - Scan data collected after FSS. This is suspect for falsification of Scan and Static measurement data.</p> <p>Recommend re-sample.</p>	<p>Is Bldg. 401 going to receive additional investigation?</p> <p>Static data range needs to be added to this Data Eval Form for TU083</p>	0

Yes	
	4.9

TU085	DG,DK,KB	Box Plots show concern, K-40, B-214 FSS are from different populations. Box plot Ac-228. RAS appeared to show greater variability and activity than the other sets. The biased samples appear to represent a less diverse and lower activity population compared to the others. The biased samples should have been collected at the hot spots. Bi-214 shows similar. Same for K-40 . Ac-228, Bi-214	Q-Q plots - slope breaks show sometimes flatter, sometimes steeper, could mean different populations	
TU086	DK			
TU087				
TU088				
TU089				
TU091				
TU092				
TU093				
TU096				
TU097				
TU097	DK	Bias has high variability vs other data.		
TU098				
TU098	DK, KB	K-40 - mean for Final is highest and less variable. Seems odd that FSS would have a different mean from the others, but Ac-228 similar means so might be ok.		
TU099				
TU099	DK			
TU100				
TU101	DK			
TU101				

Form states "Gamma Static measurements not representative of conditions" Text in form shows gamma scan low variability.		Ac-228 and Bi-214 appear to be different populations at different times.
Form states Static dataset not consistent with Scan dataset. Gamma static range 4,211 to 4,632 is a band that is extremely narrow. But the scan range went above 7,000 Typically should see range of at least 2,000 to 3,000. Why didn't they collect biased? Could it be a sign that they used gamma scanning to collect samples where gamma showed lower readings.		
"static" measurements inconsistent w/FSS;		

	2
	1
	2
	1

Recommend Resample to confirm ROC concentrations/ chemicals		1
Navy says to Resample already		
Soil under Bldg 351A,; K-40 FAA different population. Recommend Resample to confirm ROC concentrations		
Recommend resample to confirm ROC concentrations		
Cs-137 remediation,Highest Cs-137 concentration recorded in Parcel G, Resample to confirm ROC concentrations		
Cs-137 remediation,		

	12
	15
	5
	4
	11
	6

TU102	DK			
TU102				
TU103	DK			
TU103				
TU104				
TU106				
TU107	DK			
TU107				
TU108				
TU111				
TU115	DK			
TU115				
TU116	KB, DK		Different slope in line on final. One way falsification caught in 2012 was K-40 for FSSR not the same as original. Slope for Ac-228 looks like 2 different populations in biased samples.	
TU116				
TU117				
TU118				
TU119				
TU121				
TU124				
TU151				
TU204	DG ; DK	Box Plots show concern		
TU204				

Scan data elevated compared to sample data/several samples may have been substituted,		
Gamma Scan data >3sigma;		
Scan measurements above investigation threshold inconsistent w/ FSS samples, samples could have been taken in areas with lower count rate in trench.		

		1	K-40 Final sample set appears different from earlier. Ac-228 shows 2 different populations, scan measurements higher earlier inconsistent with final sample results	

	1
	0
	1
	1

Cs-137 remediation, K-40 may be from diff pop, Recommend Resample to confirm ROC concentrations		
Resample to confirm ROC concentrations		
samples may have been collected somewhere else within the trench, Resample to confirm ROC concentrations		
Cs-137 remediation, but looks ok		
Close to impacted area, had a lot of remediation, Difficult to excavate more.		
where is form		1

	7
	14
	9
	2
	1
	8

	Survey Unit	Reviewer	Box Plots	Q-Q Plots
Building				
	Bldg 24	TJ	K-40 biased concentrations low, systematic were high. Biased results do show anomalies, contrary to form conclusions, elevated ratings, suspicious potassium variation, only one round of sampling.	
	Bldg 27	TJ		
	Bldg 30	TJ		
Parcel G Bldg SUs recommended for NFA				
Building	SU			
364	SU 20			
364	SU 22			
364	SU 23			
364	SU 24			
364	SU 25			
364	SU 26			
364	SU 27			

Rounds of excavati on	Gamma scan or static concerns	On vs offsite lab	Time Series	Signs of falsifying (1=Yes, 0=no)
				0
				0

Signs of falsification summary	Failure to follow workplan (1=Y, 0=N)	Signs of failure to follow workplan	Overall score (0 to 2)
			2
			2

Comments - Other	Followup needed, e.g. questions for Navy	Recommend for PCA (1=Y, 0=N)
Peanut spill area, Form said "no remedial action" and also "peanut spill excavation." Needed to scan entire surface area	Request Cs box plots, Note Christina will do, still waiting for it	
Site off spill, significant spills, time series failed, 2-6 months later delay, missing scan data from the FSSR		
K-40 on avg higher than other bldgs Parcel G		

Grey area - talk to group	Scoring ranking